RUST GEOTECH INC.

Spectral Gamma-Ray Borehole
Log Data Report

Log Event A

Borehole # 41-15-03

Borehole Information

Farm : SX **Tank :** SX-115 **Site Number :** 299-W23-118
N-Coord : 35,126 **W-Coord :** 75,824 **TOC Elevation :** 661.34
Water Level, ft : **Date Drilled :** 4/2/1962

Casing Record

Type : Steel-welded **Thickness :** 0.280 **ID, in. :** 6
Top Depth, ft. : 0 **Bottom Depth, ft. :** 75

Equipment Information

Logging System : 2 **Detector Type :** HPGe **Detector Efficiency:** 35.0 %
Calibration Date : 03/1995 **Calibration Reference :** GJPO-HAN-1

Logging Information

Log Run Number : 1 **Log Run Date :** 7/14/1995 **Logging Engineer:** Bob Spatz
Start Depth, ft.: 0.0 **Counting Time, sec.:** 100 **L/R :** L **Shield :** N
Finish Depth, ft. : 25.5 **MSA Interval, ft. :** 0.5 **Log Speed, ft/min.:** n/a

Log Run Number : 2 **Log Run Date :** 7/17/1995 **Logging Engineer:** Bob Spatz
Start Depth, ft.: 75.5 **Counting Time, sec.:** 100 **L/R :** L **Shield :** N
Finish Depth, ft. : 39.5 **MSA Interval, ft. :** 0.5 **Log Speed, ft/min.:** n/a

Log Run Number : 3 **Log Run Date :** 7/14/1995 **Logging Engineer:** Bob Spatz
Start Depth, ft.: 40.5 **Counting Time, sec.:** 100 **L/R :** L **Shield :** N
Finish Depth, ft. : 24.5 **MSA Interval, ft. :** 0.5 **Log Speed, ft/min.:** n/a

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Analysis Information

Analyst : A.W. Pearson

Data Processing Reference : Data Analysis Manual Ver. 1 Analysis Date : 9/8/1995

Analysis Notes :

This borehole was logged in three log runs with the gain stabilizer operating. The pre- and post- verification spectra indicated that the logging system was operating properly. The energy/channel drift observed during the log run was minimal, and multiple energy calibrations were not necessary to process the data.

The casing thickness is 1/4 in. (0.25 in.); the correction used for data processing was for 0.25-in.-thick casing. The borehole was dry and no water correction was required.

The only man-made radionuclide identified was Cs-137. This contaminant occurred from the surface to a depth of 3.5 ft, at the bottom of the borehole, and at discontinuous locations throughout the borehole at concentrations slightly above MDA. Measured concentrations were 2 pCi/g or less, except at the surface.

The total gamma-ray log indicates several changes in lithology below about 56 ft.

Repeatability at the overlaps was within the statistical uncertainty.

Additional details regarding interpretation of the data for this borehole are presented in the Tank Summary Data Report for tank SX-115.

Log Plot Notes:

Three log plots are provided. The Cs-137 activity is plotted alone to provide details of activity and distribution.

The natural gamma-ray logs show the activities of the naturally occurring radionuclides potassium (K-40), uranium (U-238), and thorium (Th-232). The KUT plot is provided to allow correlation of lithologic features between boreholes. The KUT activities observed in this borehole are typical for Hanford Site sediments.

A combination plot incorporates the Cs-137 and KUT log data with the total gamma-ray count rate derived from the spectral gamma-ray data and the gross gamma-ray data acquired with the WHC Tank Farms gross gamma-ray logging systems. This plot allows correlation of the Cs-137 contamination zones with lithologic features and with the gross gamma-ray historic record.

The statistical uncertainty in a measurement is represented on the log plots by uncertainty bars where appropriate. This uncertainty is reported at the 95-percent confidence interval. The minimum detectable activity (MDA) of a radionuclide represents the lowest activity at which positive identification of a gamma-ray peak is statistically defensible. The MDA values are indicated on the log plots by open circles. If the reported activity is slightly above the MDA, the 95-percent confidence interval of the concentration may extend below the MDA value.

The Tank Farms gross gamma-ray plot is produced from the most recent data available from WHC. No corrections other than scale adjustments for plotting have been made to the data.